Environmental Assessment

for the

Upgrade of a Radar Facility
at
Hill 3265
in the
Yukon Training Area, Alaska

354th Fighter Wing
Eielson AFB, Alaska
April 2004

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Finding Of No Significant Impact (FONSI)
for the
Environmental Assessment to Upgrade a Radar Facility at Hill 3265
Yukon Training Area, Alaska

Introduction

The host unit at Eielson Air Force Base (Eielson), the 354th Fighter Wing (FW), operates F-16 Fighting Falcon and A/OA-10 Thunderbolt aircraft. The 354 FW's mission is to train and equip personnel for close air support of ground troops in an arctic environment. The complex combat scenario training requirements and advanced capabilities of the aircraft require large expanses of airspace to train. The Military Operating Areas (MOAs) in Alaska these aircraft use cover large areas and are jointly used by civilian and commercial aircraft as well as the military. It is imperative that adequate radar and radio coverage for these areas exist to ensure aircraft safety. Currently, areas within this airspace do not have adequate coverage. Complete radar sensor coverage of the entire Pacific Alaska Range Complex airspace at all altitudes is not economically feasible due to the mountainous terrain. However, it is the goal of the USAF to achieve 70 percent coverage at 2,000 feet aboveground level (AGL) and 90 percent coverage at 5,000 feet AGL within each Military Operating Area. The proposed Hill 3265 radar installation upgrade would aid in achieving this overall objective.

Proposed Action

The proposed action would result in the replacement of the existing radar system located at Hill 3265 with a new TPS-77 system that will significantly enhance the radar coverage capabilities of the facility. This proposal would utilize, to a large extent, existing infrastructure such as fuel tanks, microwave antenna, and communication shelters.

Alternatives to the Proposed Action

Alternative 1 would result in the removal of the TPS-63 radar and demolition and disposal of the existing concrete foundation. A new foundation would be constructed and a TPS-77 radar installed at a site located approximately 130 feet southeast of the existing radar facility. Alternative 2 would result in the placement of a similar facility on Taylor Mountain, located 85 miles southeast of Eielson.

No Action Alternative

Under the no action alternative, existing long-range radar and ground-to-air coverage would not be expanded and no additional radar equipment would be installed. This would result in no improvements to air traffic safety in the MOAs that are currently deficient in coverage.

Environmental Impacts of the Proposed Action

Biological Resources

Some minor impacts to vegetation and disturbance to soils will occur with activities associated with the proposed action. The site has previously received minor impacts when the original radar facility was constructed. Additional impacts will be minimal.

Wetlands

No wetlands will be impacted by this project.

Threatened or Endangered Species

There are no threatened or endangered species in the project area. The project area is not suitable habitat for any of the threatened or endangered species occurring in the Alaskan interior.

Historical or Cultural Resources

Although this site has not been surveyed recently, it is not thought to have a high likelihood of cultural resources. An updated field survey of the Hill 3265 site is scheduled to be completed this summer prior to any construction activities at the site. If at that time cultural resources are identified, the findings will be coordinated with the State Historic Preservation Office and all measures deemed appropriate to protect these resources will be taken.

Air Quality

The proposed action will have minor air quality impacts during construction due to fugitive dust and machinery exhaust. Such impacts will be highly localized and temporary in nature. During the interim period when the facility is powered by diesel generators, there will be some minor impacts from diesel emissions. The site will be provided with electric power by the end of 2004 as an result of a ongoing power supply project in the area.

Mitigation

No mitigation was required by state and federal agencies for any aspect of the proposed work.

Public Comment

No public comment was received from the public noticing of the Draft EA/FONSI.

Findings

Pursuant to the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) implementing regulations for NEPA (40 CFR Part 1500-1508), and Air Force Instruction (AFI) 32-7061 *Environmental Impact Analysis Process* (32 CFR Part 989), the Air Force has conducted an EA for the construction of a new radar facility on Hill 3265 in the Yukon Training Area. This FONSI has been developed pursuant to information provided in the accompanying EA.

Finding of No Significant Impact: Based on this environmental assessment, which was conducted in accordance with the requirements of NEPA, CEQ, and Air Force Instructions, I conclude the construction of a new radar facility on Hill 3265 in the Yukon Training Area will not result in significant impacts to the environment. I also find that the preparation of an environmental impact statement is not warranted.

BENNETT M. BITLER
Colonel, USAF
Vice Commander

15 MAY 04
Date

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Hill 3265 Radar Installation Upgrade
Eielson AFB, Alaska

1.0 Purpose and Need for Action

Section 1.0 provides a description of the purpose and need for the proposed action.

1.1 Background and Objectives for the Proposed Action

1.1.1 The 11th Air Force (Headquarters, Elmendorf AFB, Alaska), under the direction of the North American Aerospace Defense Command (NORAD), is proposing to upgrade the radar installation located on Hill 3265 (**Figure 1**). Installation of a new radar system would provide Long-Range Radar (LRR) coverage of the airspace over and surrounding the Fort Greely National Missile Defense site. The existing radar system located on Hill 3265 does not have the capability of providing the required long-range radar coverage for the Fort Greely area. The National Missile Defense System, otherwise known as the Ground-based Midcourse Defense (GMD) system, is based at Fort Greely, which is located approximately 100 miles southeast of Fairbanks, Alaska.

Figure 1 – General Site Location

1.1.2 The proposed upgrade to the Hill 3265 radar system would also provide the USAF the ability to monitor the low altitude airspace within the Northway Corridor, also known as the Delta Corridor. The Northway Corridor is the primary civil aviation corridor used by both private and commercial aircraft for travel between Alaska and Canada and is defined as the

airspace above, and 15 nautical miles along, either side of the Alaska-Canada Highway. The radar could provide a feed to the Federal Aviation Administration (FAA) for traffic separation between military and civilian aircraft operating within the Northway Corridor.

1.1.3 Long-range radar is used for ground control intercept during Major Flying Exercises and is also used by Eielson Air Force Base Range Control for monitoring military/civilian aircraft flying in Pacific Alaska Range Complex (PARC) airspace and is integral to the mandated Special Use Airspace Information Service (SUAIS).

1.1.4 The SUAIS was established to enhance communication between civilian and military operations and relies on information provided by radar coverage of these areas. This service is designed to increase the real-time awareness of both military and civilian pilots operating in Military Operating Areas (MOAs). This service is limited to providing basic information pertaining to the status of operations in an area and is not intended to provide air traffic control services, flight plan filing, or weather information. The SUAIS is mandated by the Record of Decision (ROD) for the Alaska Military Operations Areas Environmental Impact Statement, which established the PARC airspace in the 1990s. The SUAIS also provides another avenue for reporting known information on any aircraft-reported emergency or other hazard and could potentially be used as an aid to search and rescue activities.

1.1.5 Existing PARC radar coverage supports approximately 40 percent of the airspace below 2,000 feet AGL and 60 percent of the airspace below 5,000 feet AGL. Complete radar sensor coverage of the entire Pacific Alaska Range Complex airspace at all altitudes is not economically feasible due to the mountainous terrain. However, it is the goal of the USAF to achieve 70% coverage at 2,000 feet above ground level (AGL) and 90 percent coverage at 5,000 feet AGL within each Military Operating Area. The USAF considers this to be an operationally acceptable and realistic goal. The proposed Hill 3265 radar installation upgrade would aid in achieving this objective.

1.1.6 Increased radar coverage would also allow the USAF to expand the functional area within the PARC that is available for training and exercises. Presently, the majority of training and exercises occurring within the PARC is done in the central airspace where there is sufficient radar and radio coverage to track exercise participants. Expanding radar and radio coverage further into the range allows control of more airspace. In addition to increased long-range radar coverage for the Fort Greely National Missile Defense site and the Northway Corridor, the proposed Hill 3265 radar installation upgrade would provide additional radar coverage and training opportunities in the Yukon 1, 2, and 3 MOAs and in Range 2202. It is the goal of the USAF to gain FAA approval for Eielson Air Traffic Control of PARC airspace during exercises. Additional radar systems certifiable by the FAA for Eielson Air Traffic Control are required to support this objective.

1.1.7 To achieve these objectives, the USAF proposes to upgrade the radar installation located on Hill 3265 by removing the existing TPS-63 radar and installing a TPS-77 radar system using the existing concrete foundation. Modifications of support facilities on Hill 3265 would also be required under the proposed action.

1.2 Location of the Proposed Action

Hill 3265 is located approximately 30 miles east of Eielson within the Fort Wainwright Yukon Training Area and is accessible by an unimproved dirt road from Eielson (**Figure 2**). Eielson is located approximately 22 miles south of Fairbanks, Alaska.

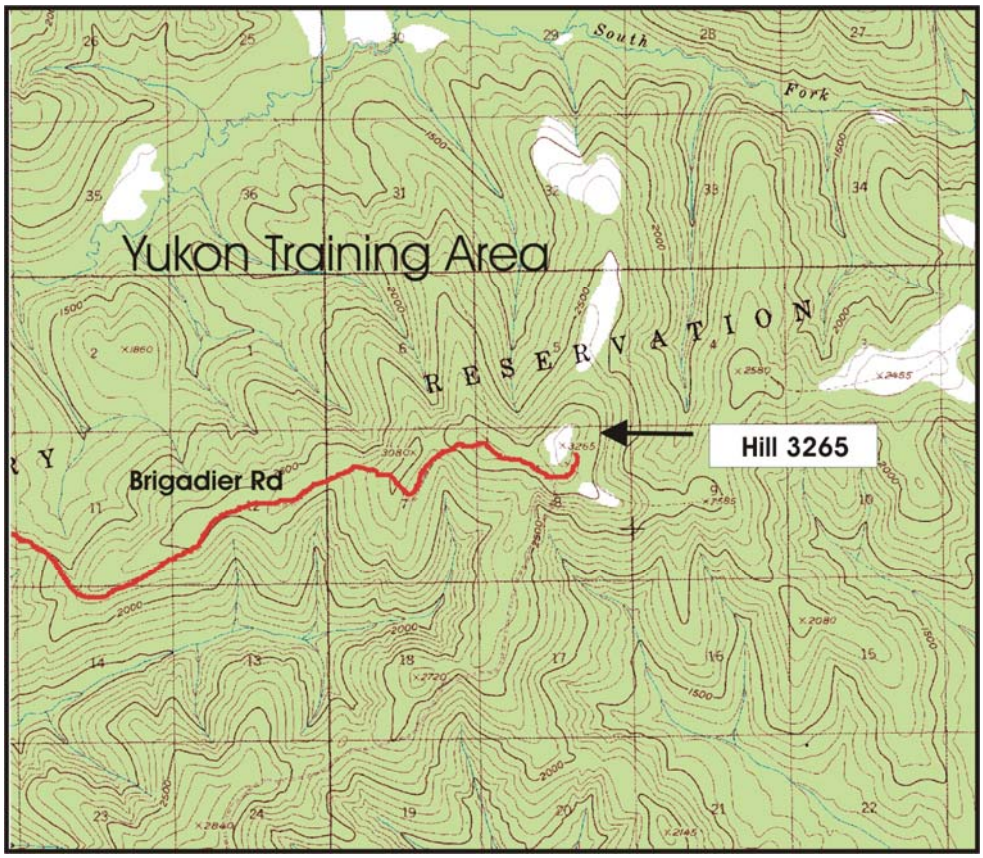

Figure 2 – Topographic Map of Hill 3265

1.3 Alternatives to the Proposed Action

In addition to the proposed action, the following alternatives, including the no action alternative, are considered for analysis in this Environmental Assessment (EA).

1.3.1 Alternative 1 – Installation of TPS-77 Radar on Hill 3265 with Construction of New Foundation

This alternative would result in the construction a new foundation and installing a TPS-77 radar at a site located approximately 130 feet southeast from the existing radar facility. The existing TPS-63 radar and foundation would be removed under this alternative.

1.3.2 Alternative 2 – Installation of TPS-77 Radar on Taylor Mountain

This alternative would result in installation of a TPS-77 radar facility on Taylor Mountain, which is located 54 miles northeast of Tok Alaska, 6 miles west of the Taylor Highway and 40 miles west of the Alaskan/Canadian border (**Figure 1**). This site is undeveloped and would be accessed by helicopter.

1.3.3 No Action Alternative

Under the no action alternative, existing long-range radar coverage would not be expanded and there would be no alterations or additions to existing Hill 3265 radar facilities.

1.4 Decision to be Made

1.4.1 As required by Air Force Instruction 32-7061, an *Environmental Impact Analysis Process* (EIAP) must be completed to evaluate potential environmental consequences of the proposed Hill 3265 Radar Installation Upgrade. The completion of this EA is intended to satisfy these requirements. The proposed action and all alternatives listed in Section 1.3 are addressed in detail in Chapter 2.0 of this document. A description of the resources located at each of the sites is described in Chapter 3.0, and the impacts that could result from each one are discussed in Chapter 4.0.

1.4.2 Based on the evaluation of impacts in the EA, a Finding Of No Significant Impact (FONSI) will be published if there is a finding of no significant environmental impacts for the proposed action. If it is determined that the proposed action will have significant environmental impacts, other alternatives will be considered for which impacts may not reach the threshold of significance.

1.4.3 The EA, a draft FONSI (if applicable), and all other appropriate planning documents will be provided to the Eielson Vice Wing Commander, the decision maker, for review and consideration. If, based on a review by the decision maker of all pertinent information, a FONSI is proposed, a notice of intent (NOI) will be published in accordance with 40 CFR 1506.6. All interested parties will have 30 days to comment on the decision to the Air Force. If, at the end of the 30-day public comment period, no substantive comments are received, the decision maker will sign the FONSI.

1.5 NEPA Actions that Influence this Assessment

1.5.1 *Alaska Military Operations Areas-Environmental Impact Statement (EIS) 11th Air Force, 1995*. This EIS was prepared to address the environmental impacts of restructuring the Air Force Special Use Airspace in Alaska. This document assesses several issues including airspace management, biological resources, recreational resources, subsistence, land use, air quality, and noise as they relate to operation of military aircraft.

1.5.2 *Alaska Army Lands Withdrawal Renewal-Final Legislative EIS, U.S. Army 1998.* This EIS assesses the environmental consequences associated with the continued military

use of U.S. Army lands and the renewed withdrawal of those lands including the Fort Wainwright Yukon Training Area.

1.5.3 *Integrated Natural Resources Management Plan 1998-2002 U.S. Army Alaska Volume 3 Fort Wainwright.* These documents provide a series of options for resource management of the Fort Wainwright Yukon Training Area.

1.6 Project Scoping/Significant Issues

This section provides a summary of issues raised during the scoping process. The scoping process identifies relevant issues and establishes the limits of the environmental analysis.

1.6.1 A scoping meeting was held on January 23, 2004 to discuss the proposed action and the various alternatives. A site visit to Hill 3265 was conducted on January 30, 2004. The meeting and site visit involved Air Force and BESTECH personnel. As part of the scoping process, interested parties were contacted regarding the proposed project to solicit input and identify issues. In response to these inquiries, the USAF received no input concerning the proposed action. Section 5.0 of this document lists the individuals and groups that participated in the scoping process. The topics listed below were issues identified as relevant to the analysis process and will be addressed in detail in this document in Chapters 2, 3, and 4.

1.6.2 *Hazardous Material Releases*: The proposed radar and communication site would be powered by diesel generators. Proposed power systems would by designed to reduce the risk of a hazardous materials release (fuel, oil, and antifreeze) associated with operation of generators. Spill Prevention would include spill pallets under generators, use of double walled fuel tanks, interstitial and product monitoring on the fuel tank, and a containment area for fuel transfers. Even with these precautions, however, a malfunction in a generator or mishandling of fuel could cause a hazardous material release.

1.6.3 *Air Quality*: Diesel generators would operate on a continuous basis resulting in ongoing diesel emissions to the surrounding atmosphere. A project has been proposed that will connect the facility to the Eielson power grid. It may be built as early as summer 2005.
1.6.4 *Aesthetics*: Installation of radars and antennas could impact the scenic quality of the project area.

1.6.5 *Wildlife*: Potential impacts include alteration or loss of habitat and unintentional taking of wildlife. Actions such as the installation of antenna towers and radar domes have the potential to result in avian mortality due to bird strikes on towers.

1.6.6 *Safety*: Safety of military and civilian aircraft operating in MOAs without adequate long-range radar coverage may be diminished.

1.6.7 *Radiation Hazards*: The installation of radar sites could result in electromagnetic radiation hazards to fuels, electronic hardware, and personnel.

1.7 Federal and State Permits or Licenses Needed to Implement the Project

1.7.1 Section 106 of the National Historic Preservation Act requires project specific identification of cultural resources. An archeological survey and 106 Consultation would need to be completed prior to implementing the proposed action, alternative 1, or alternative 2.

1.7.2 Alternative 2 would result in placement of structures on state of Alaska owned lands. Eielson's Real Estate Office would be responsible for procuring the necessary land use permit from the Alaska Department of Natural Resources (DNR) to support the selected action. In addition, the USAF would be responsible for procuring the necessary land use permits from appropriate landowners for sites selected as temporary staging areas.

2.0 Description of the Proposed Action and Alternatives

Section 2.0 provides a description of alternatives considered to achieve the purpose and need described in Section 1.0. The Proposed Action, Alternative 1, Alternative 2, and the No Action Alternative will be addressed.

2.1 Proposed Action – Installation of TPS-77 Radar on Hill 3265 Using Existing Foundation

The proposed action would result in the removal of the TPS-63 radar/radome on Hill 3265 and its replacement with a TPS-77 radar using the existing foundation (**Photograph 1**). This alternative would utilize infrastructure already in place such as fuel tanks, communication shelters, and microwave antenna. Additional foundation support would include placement of steel pilings around the perimeter and construction of a platform over the existing concrete foundation. Grounding requirements for the electrical system would require the drilling and installation of grounding rods and burial of grounding cable into bedrock at the site.

Photograph 1 – Hill 3265 Radome

2.2 Alternative 1 – Installation of TPS-77 Radar on Hill 3265 with Construction of New Foundation

Alternative 1 would result in the removal of the TPS-63 radar and demolition and disposal of the existing concrete foundation. A new concrete foundation would be constructed and a TPS-77 radar installed at a site located approximately 130 feet southeast from the existing radar facility. This alternative would also utilize existing infrastructure and radar system components located on Hill 3265. Grounding requirements for the electrical system would require the drilling and installation of grounding rods.

2.3 Alternative 2 – Installation of TPS-77 Radar on Taylor Mountain

2.3.1 Alternative 2 would result in installation of a TPS-77 radar facility on Taylor Mountain, which is located approximately 6 miles west of the Taylor Highway and 54 miles northeast of Tok, Alaska. This site is undeveloped and would be accessed by helicopter. There would be no impact to wetlands with alternative 2.

2.3.2 Installation of the radar site would require the development of a 0.6-acre site located on the summit of Taylor Mountain (**Photograph 2**). The actual footprint of the radar facilities would require a total of 0.23 acres. The developed site would consist of five distinct areas with the following components:

- A 400-square-foot helicopter pad;
- A transceiver area with LRR phased-array radar enclosed in a radome with an approximate footprint of 4,071 square feet;
- A shelter deployment area containing (3) Navair type equipment shelters with a total footprint of approximately 3,127 square feet;
- A 2,024-square-foot power generation area containing two 175-kilowatt (kW) diesel generators, two 10,000-gallon aboveground fuel storage tanks, power distribution equipment, a generator shelter; and
- Two13-foot by 13-foot antenna tower sites totaling 338 square feet.

Photograph 2 – Taylor Mountain

2.3.3 Taylor Mountain would be considered a fly-in only site. All equipment, material, and personnel would be ferried to the site via helicopters (CH-47 and Bell 212). This would be an unmanned radar site and would require maintenance and fuel delivery to be flown in on a monthly basis. During the construction period, a secured staging area would be set up for temporary storage of materials. The staging area would be located in Chicken, Alaska approximately 11.5 miles northeast of Taylor Mountain.

2.3.4 Operation and maintenance of the facility would require approximately one site visit per month by helicopter for refueling generator fuel tanks, preventative maintenance, and repairs.

2.4 General Installation Requirements Common to the Proposed Action, Alternative 1, and Alternative 2

Installation of TPS-77 radar system would consist of five phases:

- System transport
- Site survey and preparation
- Site construction
- Integration of site communications
- System testing

Specific installation requirements for the action alternatives would vary due to differences in site location and available infrastructure. Site development and associated tasks required for implementation of action alternatives are presented in **Table 1**.

Table 1 – TPS-77 Radar Installation Tasks

System Transport
Proposed Action and Alternative 1 • Haul all equipment, materials, and system components via flatbed trucks from Eielson to Hill 3265. Mobilization of equipment and materials would require approximately 8 trips using 40’ tractor-trailers. **Alternative 2** • Transport equipment and materials from Eielson to staging area located in Chicken, Alaska. This would require approximately 12 trips utilizing flatbed trucks. Equipment and material transport from staging area to Taylor Mountain would require approximately thirty-three (33) round trips using a CH-47 Chinook helicopter over ten days. A Bell 212 support helicopter would be required for transporting personnel during the estimated sixteen (16) weeks necessary for site prep, construction, integration, and system testing. Helicopter trips for transporting personnel would require approximately six round trips daily between Chicken, Alaska and Taylor Mountain.

Table 1 – TPS-77 Radar Installation Tasks

Site Survey and Preparation

Proposed Action

- Demobilize TPS-63 radar.
- Install 19 steel pilings around the perimeter of the concrete foundation to support cantilevered radar platform. Steel pilings would be buried 5 feet below ground surface using a track drill. Pilings would be 2 inches in diameter and would be pressure grouted with concrete after installation.

Alternative 1

- Demobilize TPS-63 radar and demolish/remove concrete foundation.
- Level and prepare new radar site.
- Construct new concrete foundation (60 feet in diameter by 13 feet high). Concrete would be mixed on-site using a portable batch plant. Concrete foundation would require an additional 80 cubic yards of gravel delivered to the site.

Alternative 2

- Construct 20-foot by 20-foot by one-foot thick gravel helicopter pad. Gravel would be leveled with skid-steer type loader.
- Construct gravel pads for equipment shelters by placing a minimum of 1-foot of gravel on top of the existing ground surface. All structures would be placed on 6-inch thick concrete slabs poured in place on gravel pads.

Site Construction

Proposed Action and Alternative 1

- Construct a 60-foot diameter wood/steel platform over concrete foundation to support radome structure.
- Install four (4) concrete pilings to support 10-foot by 40-foot generator shelter. Concrete pilings would be installed 5 feet below ground surface using an excavator.
- Install two 140-kilowatt diesel generators in generator shelter. Generators would be equipped with 250-gallon day tanks and would be connected to existing on-site 12,000-gallon and 10,000-gallon above ground storage tanks.
- Install electrical grounding system using grounding rods. The grounding rods would be connected together with a common ground wire with direct burial that would extend to the radar system.
- Construct a 60-foot diameter by 70-foot-high radome to house radar components.
- Install TPS-77 radar in radome.

Alternative 2

- Install grounding system. Due to rocky soil conditions on summits, an aboveground ring-type grounding system would be incorporated to achieve the optimal 10-ohm

Table 1 – TPS-77 Radar Installation Tasks

resistance required for the system. It is estimated that up to 20 grounding rods would be required for the radar installation. Set three Navair type metal equipment shelters in place with a CH-47 Chinook helicopter.

- Construct a 2,024-square-foot generator shelter to house diesel generators and power distribution equipment. Two double walled, 10,000-gallon aboveground fuel tanks would be placed on concrete slabs. Install two 175-kilowatt diesel generators.
- Place two 13-foot antenna towers on concrete pads.
- Construct a 60-foot diameter by 70-foot high radome and install TPS-77 radar.

2.5 No Action Alternative

Under the no action alternative, existing long-range radar coverage would not be expanded and there would be no alterations or additions to existing Hill 3265 radar facilities.

2.6 Other Alternatives Considered

Two additional sites were considered for installation of a radar system but were rejected due to site considerations. Placement of a radar installation in Tok was considered but rejected due to poor ground-to-air radio coverage caused by its lower elevation. A radar site located on the summit of Glacier Mountain was also considered but rejected for accessibility and economic reasons. Glacier Mountain is located approximately 106 miles northeast of Tok with no economical means of establishing the necessary data-link to the existing microwave network.

3.0 Affected Environment

Chapter 3 describes the existing environment and resource components that would be impacted by the proposed project and the alternatives. The resources discussed in this section are presented as a baseline for comparisons of environmental consequences. Unless otherwise specified, resource descriptions in Chapter 3 are regional descriptions that encompass the Proposed Action and all Alternative Actions. Resources discussed in the section are as follows:

- Physical resources, which includes general site location, topography, geology, soils and permafrost, climate and air quality, ground and surface water, wetlands, and infrastructure improvements.
- Biological resources, including vegetation, wildlife, fish, threatened or endangered species. Cultural Resources including archeological or historical resources.
- Recreational resources
- Socioeconomic factors

3.1 Physical Resources

3.1.1 General Site Location

3.1.1.1 Proposed Action and Alternative 1

Hill 3265 is located approximately 30 miles east of Eielson within the Fort Wainwright Yukon Training Area and the Fairbanks North Star Borough. Eielson is located approximately 22 miles south of Fairbanks, Alaska (**Figure 1**).

3.1.1.2 Alternative 2

Taylor Mountain is located 54 miles northeast of Tok Alaska, 6 miles west of the Taylor Highway, and 40 miles west of the Alaskan/Canadian border (**Figure 1**).

3.1.2 Topography

3.1.2.1 Proposed Action and Alternative 1

The proposed project area lies within the east portion of the Yukon-Tanana Upland subregion of the Northern Plateau physiographic province. The topography in the eastern part of the Yukon-Tanana Upland is characterized by flat-topped, evenly rounded mountains and ridges rising 3,000 to 5,000 feet above mean sea level with some domes as high as 6,800 feet above mean sea level (**Photograph 3**). Hill 3265 is located at 3,265 feet above mean sea level. Valleys in the area range from steep/narrow valleys located near the headwaters of streams to broad valleys near the confluence of major river drainages. Several streams flow through the valley floor in the vicinity of the proposed action and alternative 1 sites including the South Fork Chena River, Ninety-Eight Creek, Salcha River, and unnamed tributaries.

Photograph 3 – View from Hill 3265 looking northwest

3.1.2.2 Alternative 2

Alternative 2 lies within the central portion of the Upper Yukon-Canada physiographic province. This region includes portions of the White, Fortymile, and Laude river drainages within Alaska and covers about 9,000 square miles. Rounded ridges and gentle slopes characterize the topography of this section. In the western part these rounded ridges trend northeast to east with ridge crest altitudes of 1,500 to 3,000 feet and rise 500 to 1,500 feet above adjacent valley floors. Valleys in the western part are generally flat, alluvium-floored, and one-fourth to one mile wide to within a few miles of the headwaters. Ridges in the eastern part have no preferred direction and range from 3,000 feet to 5,000 feet in altitude. However, some have domes as high as 6,800 feet and rise 1,500 to 3,000 feet above adjacent valleys. In the extreme northeast the ridges are very rugged. Streams in the eastern part that drain to the Yukon River flow in narrow, V-shaped terraced canyons, while the headwaters of the Fortymile and Laude Rivers are broad, alluvium-floored basins.

3.1.3 Geology, Soils, and Permafrost

3.1.3.1 Proposed Action and Alternative 1

3.1.3.1.1 The geology of the area consists of Precambrian and Paleozoic-age metamorphic rocks of the Yukon-Tanana crystalline complex, formally known as the Birch Creek Shist. The rocks have been intruded by igneous rocks of Mesozoic and Cenozoic age and have been the source of gold bearing rock found throughout the area. The igneous and metamorphic rocks have been overlain by younger sedimentary Pleistocene and Holocene fluvial gravel and loess deposits. These deposits originated from the floodplain of the Tanana River and the foothills of the Alaska Range. The loess varies in depth from a few inches on the ridge tops to 100 feet in the valleys.

3.1.3.1.2 Soils in the upland areas consist of well-drained silty soils, chiefly loess over bedrock that varies in depth. Upland soils found on south-facing slopes are generally better drained than those found on north-facing slopes, which usually are underlain by discontinuous permafrost. Soils found at the peaks of summits are characteristically well drained shallow silt loam overlying very gravelly loam. Soil cover on the summit of Hill 3265 consists of a fairly uniform, well-drained gravelly silt loam less than 2 inches in depth. Soils in the alluvial plains of the streams range from well-drained sands and gravels to poorly drained silts and loams. The Chena River and Salcha River valleys are underlain predominately by highly permeable sands and gravels of fluvial and glacio-fluvial origin. Depressions in the alluvial plains are often interbedded with thick peat layers and usually underlain by continuous permafrost. Variations in terrain, vegetation, and climate can affect the presence and thickness of permafrost.

3.1.3.2 Alternative 2

3.1.3.2.1 The central portion of the Upper Yukon-Canada physiographic province is geologically complex and includes the Tintina fault zone. Thrust faults cut a sequence of highly deformed Paleozoic sedimentary and volcanic rocks containing limestone. Serpentine ultramafic rocks and a wide variety of other igneous rocks also occur throughout the area. South of the Tintina fault zone fairly high-grade Mesozoic and Tertiary granitic rocks intrude metamorphic rocks. In the western portion of the region large areas are covered by volcanic rocks of Tertiary and Quaternary age. Coal-bearing rocks containing sub bituminous coal can be found in the northeast part of the region. A coal deposit at Chicken on the South Fork of the Fortymile River contains a sub bituminous coal seam 22 feet in width. Unconsolidated deposits accumulated during the Pleistocene period are concentrated in the river valleys and lowlands. Fortymile Mining District has known occurrences of gold, iron, titanium, barium, garnet, tin, mercury, tungsten, thorium, silver, lead, copper, zinc, and antimony.

3.1.3.2.2 Soils in the region are mantled with loamy soils of variable texture. Wet loams with thick surface organic mats occupy lowland areas along rivers. Soils in the Mosquito Flats and Upper Dennison Fork valleys of the Fortymile basin consist of poorly drained loamy soils with a thick surface layer of peat. Other poorly drained soils occupy lower slopes adjacent to valley bottoms in the Tanana Valley and lowlands of the Fortymile area. Soil texture becomes more gravelly at higher elevations. Soils found at the peaks of summits are characteristically well-drained shallow silt loam overlying very gravelly loam. Soil cover on the summit of Taylor Mountain is estimated to be fairly uniform, well-drained gravelly silt loam less than 2 inches in depth.

3.1.3.2.3 The extent and thickness of permanently frozen ground in the region varies from thick, continuous permafrost in the northeastern part of the region to moderately thin, discontinuous permafrost in the southern portion of the region. Permafrost is found in the lowlands and steep upper north-facing slopes in the highlands within the Fortymile and White River drainages. Well-drained gravelly loams without permafrost occupy slopes with a southern exposure in the highlands. Variations in terrain, vegetation, and climate can affect the presence and thickness of permafrost.

3.1.4 Climate and Air Quality

3.1.4.1 Proposed Action, Alternative 1, and Alternative 2

3.1.4.1.1 From the Canadian border west to the area surrounding the proposed project, the Upper-Yukon physiographic province is classified as having a continental Subarctic climate. This is characterized by a wide range of extreme temperature changes from summer to winter, large mean annual diurnal temperature changes, and extreme seasonal contrasts in sunlight duration. The region typically has clear skies and cold temperatures (lows of -60° F, highs of +40° F) in winter and hot (lows of +30° F, highs of +90° F), dry summers. This results in a low relative humidity and a high evaporation rate of surface waters and a high sublimation rate of ice and snow. Annual precipitation averages slightly more than 12 inches. The frost-free period is generally from the third week in May until the end of August.

3.1.4.1.2 May and June have the highest winds with average wind speeds of 7.7 and 7.2 miles per hour, respectively. During most of the year, the prevailing wind direction is from the north at an average of 5.15 miles per hour. However, in June and July the wind direction is typically from the southwest. Wind speed can vary with elevation and roughness of surrounding terrain.

3.1.4.1.3 The project sites fall outside the boundaries of any Air Quality Control Region. Existing conditions in the area are assumed to be in attainment with National Ambient Air Quality Standards.

3.1.5 Noise

3.1.5.1 Proposed Action and Alternative 1

The only local source of noise is from the continuous operation of 150-kilowatt diesel generators located on Hill 3265. Generators are contained in a partially enclosed shelter. Occasional noise source is also derived from periodic over flights of military and civilian aircraft.

3.1.5.2 Alternative 2

Due to the remoteness of the area, the only noise source is from periodic over flights of military and civilian aircraft.

3.1.6 Ground and Surface Water

3.1.6.1 Proposed Action and Alternative 1

3.1.6.1.1 Groundwater is typically found in small quantities in upland areas in fractures and joints of underlying bedrock. The lack of groundwater in large quantities is attributed to high topographic relief found in the area. Groundwater is available in moderate to large

quantities from the gravel deposits found in the alluvial plains of stream valleys. Depth to groundwater varies with topography and presence of permafrost. The major source of recharge for aquifers is precipitation in upland areas that enters the ground through infiltration. The groundwater quality in the region is unknown.

3.1.6.1.2 The South Fork of the Chena River located three miles north of Hill 3265 and the Salcha River located six miles to the south are the principle drainages in the area. The Salcha River is a major north side tributary to the Tanana River in the Yukon River drainage. The South Fork is a tributary of the Chena River, which is also a tributary to the Tanana River. Both rivers are non-glacial, clear water streams and are generally deep and slow in its lower reaches, while the upper portions are characterized by a classical sequence of riffles, runs, and pools with primary gravel substrate. The surface water environment is generally pristine and overall water quality and physical characteristics are typical of unpolluted subarctic Alaska streams (Balding 1976). There are no lakes or ponds present in the immediate vicinity of Hill 3265.

3.1.6.2 Alternative 2

3.1.6.2.1 Potential groundwater supply is greatest in the floodplain alluvium along riverbeds and drainages throughout the region. Detailed groundwater data for the region is not available. The major source of groundwater recharge for aquifers is from influent seepage of streams and snowmelt.

3.1.6.2.2 Lakes in the region are mainly thaw lakes located in valley floors, marshlands, and low mountain passes. The entire section is in the Yukon River drainage basin with streams flowing south to the Tanana River and north to the Yukon River. Most streams in the area freeze solid during the winter months and reach their peak flows during June and July. The Fortymile River and White River are tributaries to the Yukon River and have a drainage of 6,562 and 18,500 square miles respectfully. The White River drains the southern portion and is 75 miles in length while the Fortymile River is 56 miles in length and drains the northern portion of the region. The South Fork, Mosquito Fork and West Dennison Fork of the Fortymile River are designated as Wild and Scenic rivers. The Mosquito Fork of the Fortymile River is located 5 miles north of Taylor Mountain and the West Dennison Fork of the Fortymile River is located 10 miles east of Taylor Mountain.

3.1.7 Wetlands

Wetlands are a predominant physical feature found within the Yukon-Tanana Upland and Upper Yukon-Canada region. The presence of extensive areas of permafrost has created perched water table conditions in many areas, resulting in seasonally persistent moist or saturated soil conditions. However, no wetlands will be impacted by the proposed action or any alternatives.

3.1.8 Infrastructure Improvements

3.1.8.1 Proposed Action and Alternative 1

Hill 3265 is a road accessible developed site with infrastructure to support the existing TPS-63 radar system (**Photograph 5**). The facilities include the following:

- A corrugated steel garage type structure 32 feet long by 34 feet wide by 21 feet high that houses two operating 150-kW diesel generators.
- Two skid mounted, cylindrical, aboveground, double-wall fuel tanks with 15,000-and 10,000-gallon capacities.
- Two communications and Nav Air shelters approximately 10-feet wide by 20-feet long.
- A 32-foot diameter radome mounted on a 10-foot-high concrete cylindrical walled foundation.
- A 70-foot triangular communication tower affixed to a 22-foot-square concrete base.

Photograph 5 – Hill 3265 radar site

3.1.8.2 Alternative 2

There are no facilities or improvements located on Taylor Mountain. The site is considered a fly-in only site with no access or trail improvements to the summit. The closest road access is the Taylor Highway located approximately 6.5 miles to the east.

3.2 Biological Resources

3.2.1 Vegetation

3.2.1.1 The Yukon-Tanana Upland and Upper Yukon-Canada region supports a variety of plant communities. Due to the variations in the surrounding terrain, the plant communities vary in relation to slope orientation, changes in elevation, and fire history. Changes in vegetation are also influenced by spatial differences in soil temperature, moisture content, soil fertility, and presence of permafrost. The major plant community types include upland mixed spruce-broadleaf forests, white and black spruce coniferous forests, herbaceous wetlands, and alpine tundra plant communities.

3.2.1.2 Upland mixed spruce-broadleaf forest tends to occur on well-drained sites with little permafrost. This forest type is commonly found on south-facing slopes. Tree species include white spruce, paper birch, quaking aspen, and balsam poplar. Willows, alder, wild rose, blueberry, and high-bush cranberry are common shrubs. Ridge tops with higher elevations usually consist of a tall shrub community characterized by dwarf birch and herbaceous species with widely scattered black spruce.

3.2.1.3 White and black spruce coniferous forests are common throughout interior Alaska. White spruce can be found on well-drained upland and flood-plain sites, especially where permafrost is lacking, and on low-elevation slopes with south, west, or east aspects. Black spruce forest tends to occur on poorly drained sites underlain by permafrost. Black spruce forest is common in low-lying areas, drainage basins, and north-facing slopes. Black spruce occurs in closed canopy stands and as scrubby open stands of dwarf trees. Other species commonly occurring in white and black spruce forest type include tamarack, blueberry, low-bush cranberry, Labrador-tea, and feather moss.

3.2.1.4 Herbaceous wetland plant communities occur in poorly drained soils and are typically found where permafrost is present. Low growing shrubs such as willow and bog blueberry may be present, while some herbaceous wetlands consist primarily of graminoids and sedges.

3.2.1.5 Alpine tundra includes barren lands and is usually found on mountains, ridges, dry river terraces, alluvial fans, or on rubble slopes where bedrock is close to the surface. Characteristic shrubs include resin birch, dwarf arctic birch, crowberry, Labrador-tea, and mountain heath. Herbs present may consist of mountain avens, dryas, lousewort, and fleabane. Graminoids such as bluejoint, Siberian fescue, and sweetgrass may be found along with lichens and mosses.

3.2.1.2 Proposed Action and Alternative 1

The summit of Hill 3265 is classified as dry alpine tundra and is approximately 75 percent vegetated with the remainder of the area covered with fractured bedrock. Vegetation consists of various graminoids, herbs, and lichens.

3.2.1.3 Alternative 2

The summit of Taylor Mountain is classified as dry alpine tundra and is approximately 90 percent vegetated with the remainder of the area covered with fractured bedrock. Vegetation consists of various graminoids, herbs, and lichens.

3.2.2 Wildlife

3.2.2.1 Proposed Action and Alternative 1

3.2.2.1.1 Wildlife species in the surrounding areas are typical of those found in Interior Alaska. Large mammals that are likely to be found in nearby habitat include moose, black bear, brown bear, and occasionally caribou. According to Alaska Department of Fish and Game (ADF&G, 1997) the moose population in the area is low, about 0.5 moose per square mile. Small mammals present consist of gray wolf, red fox, wolverine, beaver, river otter, mink, snowshoe hare, red squirrel, lynx, marten and coyote.

3.2.2.1.2 Migratory birds found in the area include passerines and a variety of shorebirds and waterfowl (i.e. swans, geese, loons, grebes and ducks). Most bird species that breed in Interior Alaska are migratory and are present only during the spring and summer months. The Tanana River valley located 32 miles to the southwest is an important spring and fall migration corridor and it is estimated that hundreds of thousands of birds pass through the region each spring and fall (Kessel 1984). The Shaw Creek Flats located 32 miles southeast of Hill 3265 and to a lesser degree the Salcha River and its major tributaries, are also important migrating and breeding areas for waterfowl (Ritchie 1980). Raptors found in the area include bald and golden eagles, falcons, hawks, kestrels, great horned owls, boreal owls, and hawk owls. Non-migratory birds include ravens, jays, chickadees, songbirds, woodpeckers, grouse, and ptarmigan.

3.2.2.2 Alternative 2

3.2.2.2.1 Large mammals that are likely to be found in nearby habitat include moose, caribou, grizzly bear, and black bear. The Fortymile caribou herd utilizes the surrounding area as its principle winter range. Since 1995, the Fortymile caribou herd has increased from a population of 22,000 to almost 40,000. The Fortymile caribou herd once numbered nearly 500,000 caribou and ranged across eastern Interior Alaska and the Yukon Territory. Periodic hard winters coupled with over harvest and high predation rates drove the herd to less than 7,500 animals by the early 1970s. It is currently about 5 percent of its former size and occupies about 25percent of its former range, mostly in Alaska. Its range lies in portions of four game management subunits (20B, 20D, 20E, 25C). Other furbearers present include wolves, coyote, fox, lynx, arctic snowshoe hare, red squirrel, marten, beaver, mink, and short-tailed weasel.

3.2.2.2.2 The Upper Tanana River valley located approximately 63 miles south of Taylor Mountain is a primary migration corridor each spring and fall for Canadian geese, swans, cranes and ducks. Other migratory birds common to Interior Alaska including gulls,

swallows, thrushes, sparrows, and warblers can be found in the area. Waterfowl habitat in the Fortymile area is sparse except on the Mosquito Fork of the Fortymile, which is used by nesting waterfowl such as mallards, pintails, widgeon, green-winged teal, and buffleheads. Non migratory birds include ravens, jays, chickadees, woodpeckers, grouse, and ptarmigan. Raptors include bald and golden eagles, hawks, kestrels, owls, and gyrfalcons (usually above 2,500 feet in elevation).

3.2.3 Fish

3.2.3.1 Proposed Action and Alternative 1

The Chena and Salcha River drainages support Arctic graying, chinook salmon, whitefish, chum salmon, Arctic lamprey, cisco, burbot, northern pike, and longnose sucker. The South Fork of the Chena River, the Little Salcha River, and Ninety-eight Creek located in the Fort Wainwright Yukon Training Area are listed as anadromous stream by the state of Alaska (Viavant 1998).

3.2.3.2 Alternative 2

Fish found in major river drainages include grayling, sheefish, northern pike, and whitefish. Lakes in the vicinity are primarily thaw lakes and are too shallow and oxygen deficient to support fish on a year round basis.

3.2.4 Threatened or Endangered Species

3.2.4.1 Proposed Action, Alternative 1, and Alternative 2

3.2.4.1.1 According to U.S. Fish and Wildlife Service (USFWS), there are no known threatened or endangered species within the region or the proposed project area. However, the proposed project site is within the range of the American peregrine falcon (*Falco peregrinus anatum*), which was removed from the list of threatened and endangered species in 1999. Peregrine falcons are an infrequent migrant to the area.

3.2.4.1.2 Due to its recent recovery from endangered status, the USFWS will monitor the American peregrine falcon on a regular basis for the next decade. If survey data indicate a reversal in recovery, the American peregrine falcon could be emergency listed at any time. Therefore, the USFWS recommends agencies avoid impacts to peregrine falcons to assure a healthy long-term population.

3.2.4.1.3 No federal or state listed threatened or endangered plant species have been listed as occurring within the region.

3.3 Cultural Resources

3.3.1 Archeological and Historical Resources

3.3.1.1 Proposed Action, Alternative 1, and Alternative 2

No prehistoric or archeological sites have been located within the vicinity of sites listed under the proposed action, alternative 1, or alternative 2; however, an archeological survey would need to be completed prior to implementing the selected action.

3.3.1.2 Alternative 2

Chicken Alaska is located at 66 mile on the Taylor Highway and is listed on the Alaska Register of Historic places. Historical remains related to the discovery of gold in the Fortymile area during the 1880's are present in the area. Chicken is located approximately 11.5 miles east of Taylor Mountain.

3.4 Recreational Resources

3.4.1 Proposed Action and Alternative 1

Due to access restrictions on military base managed lands, recreational activities in the area are limited and consist primarily of large and small game hunting, trapping, and snowmobiling.

3.4.2 Alternative 2

Although there is no data on the number of people who use lands surrounding the area for outdoor recreation, it is clear that the most popular forms of recreation include canoeing, rafting, hiking, wildlife viewing, photography, snowmobile use, recreational placer gold mining, hunting, trapping, and fishing. Recreational hunting of big game species includes moose, caribou, and bear. Hunting of small game includes Arctic snowshoe hare, grouse, and ptarmigan.

3.5 Socioeconomic Factors

Proposed Action, Alternative 1, and Alternative 2

The proposed radar installation is not located near any population centers that are disproportionately inhabited by minorities or low-income groups. Few population centers exist within the region.

4.0 Environmental Consequences

Chapter 4 is organized by resources with the environmental consequences evaluated for each alternative. This discussion provides a scientific and analytic basis for the comparisons of the alternatives and describes the probable consequences (impacts and effects) of each alternative on selected environmental resources.

4.1 Physical Resources

4.1.1 Geology, Soils, and Permafrost

4.1.1.1 Impacts Common to the Proposed Action and Alternative 1

4.1.1.1.1 The primary disturbance to soils would result from the installation of the grounding system, drilling and excavation for foundation support, and placement of gravel pads over soils for the construction of facilities. Disturbance to existing soil and vegetation during construction has the potential to result in minor erosion. Mobilization of equipment and materials during periods of high precipitation may also result in erosion to the roadbed. The road from Eielson to Hill 3265 is an unimproved two-lane road, sections of which are steeply sloped and have a roadbed material that is mainly silt.

4.1.1.1.2 Depending on the area selected for a staging of equipment, compaction of soils could occur due to operation of heavy equipment and storage of materials. However, due to the shallow soil cover, the effect would be minimal.

4.1.1.2 Proposed Action

Installation of steel and concrete pilings to support the radome and the generator shed respectively would disturb less than two cubic yards of upland soils. An additional 4 cubic yards of soils would be disturbed with the direct burial of 150 feet of grounding cable located in upland soils.

4.1.1.3 Alternative 1

Approximately 75 cubic yards of upland soils would be disturbed with the construction of the concrete foundations for the radome and the generator shed.

4.1.1.4 Alternative 2

Soil cover on the summit of Taylor Mountain is estimated to be fairly uniform and less than 2 inches in depth. Installation of up to 40 grounding rods would have negligible impact on soils. Placement of gravel pads is estimated to disturb less than 30 cubic yards of soil with primary disturbance being compaction of soils.

4.1.1.5 No Action Alternative

There would be no disturbance to soils under this alternative.

4.1.2 Climate and Air Quality

4.1.2.1 Impacts Common to the Proposed Action, Alternative 1, and Alternative 2

Air quality may be temporarily diminished during construction due to emissions produced by construction equipment. Airborne particulate matter in the form of dust emissions may also increase if the construction occurs during dry summer months.

4.1.2.2 Proposed Action and Alternative 1

The proposed installation of a radar site would be powered by a constant-run diesel generator. The overall air quality in the immediate vicinity of the selected site would be slightly diminished due to emissions caused by the diesel generator. However, the USAF anticipates having commercial power available to Hill 3265 in 2005 at which time generators would no longer be necessary.

4.1.2.3 Alternative 2

The proposed installation of a radar site on Taylor Mountain would be powered by a constant-run diesel generator. The overall air quality in the immediate vicinity of the selected site would be slightly diminished due to emissions caused by the diesel generator.

4.1.2.4 No Action Alternative

There would be no changes to the existing air quality under this alternative.

4.1.3 Noise

4.1.3.1 Impacts Common to the Proposed Action, Alternative 1, and Alternative 2

A radar installation would require a diesel generator to power the facility, which would result in increased noise levels in the immediate vicinity. However, this would be minimized with the installation of a muffler system and generator shelter, which would result in reduced noise levels. There would also be a temporary increase in noise levels to the surrounding area during the construction period, which is anticipated to last two months.

4.1.3.2 Proposed Action and Alternative 1

Impacts resulting from increased noise levels due to construction would be minimal. This is a remote area with the closest manned facility (Eielson AFB) located 23 miles from Hill 3265. Diesel generators are currently running on a continuous basis at Hill 3265 to operate

the existing radar facility. Noise levels would diminish with the availability of commercial power scheduled to arrive in the area in 2005.

4.1.3.3 Alternative 2

Taylor Mountain is a fly-in only site and would result in the additional increase in noise levels during the construction period and also on an on going basis for maintenance and fuel delivery. Installation of a radar site on Taylor Mountain would result in approximately ten helicopter flights per day for ten days to deliver equipment, materials, and personnel. Construction of the radar site would require an additional six trips per day for sixteen weeks to transport contractors and AF personnel. After installation of the radar site, bi-weekly site visits by helicopter for refueling generator fuel tanks, preventative maintenance, and repairs would be required.

4.1.4 Ground and Surface Water

4.1.4.1 Impacts Common to the Proposed Action, Alternative 1 and Alternative 2

Other than minor changes to surface runoff patterns, there would be no direct impact to ground or surface waters with the implementation of the proposed action, alternative 1 or alternative 2. Selection of the proposed action or one of the alternatives would, however, require the delivery and transfer of fuel to power the generators. The potential for a hazardous material release effecting ground or surface waters would be greater with the selection of one of the action alternatives as a result of a spill or malfunction occuring during fuel delivery.

4.1.4.2 No Action Alternative

There would be no impact to ground or surface waters with the selection of the no action alternative.

4.1.5 Wetlands

There would be no impacts to wetlands from the proposed action or any of its alternatives

4.1.6 Infrastructure Improvements

4.1.6.1 Impacts Common to the Proposed Action, Alternative 1, and Alternative 2

The proposed TPS-77 radar installation at Hill 3265 would meet the USAF objectives and requirements for long-range radar coverage of the airspace over and surrounding the Fort Greely National Missile Defense site and provide the USAF the ability to monitor the low altitude airspace within the Northway Corridor. The radar system would provide additional safety for military and civilian aircraft operating in the covered area and also allow the USAF to expand the functional area within the Pacific Alaska Range Complex that is available for training and exercises.

4.1.6.2 Proposed Action

The proposed radar installation and upgrade on Hill 3265 using the existing foundation would be the most cost-effective action alternative to implement. The proposed action would maximize the use of existing facilities and infrastructure already in place.

4.1.6.3 Alternative 1

This alternative would be more costly to implement than the proposed action, but less costly than alternative 2. This alternative would utilize existing facilities with the exception of the radome foundation, which would be demolished and rebuilt.

4.1.6.4 Alternative 2

4.1.6.4.1 The implementation of this alternative would result in the installation of a radar facility on Taylor Mountain which currently is undeveloped and is a fly-in only site. Development of this site would require construction and installation of all necessary components associated with operation of a radar system and would be the most costly to implement. Installing a radar system on Taylor Mountain would extend radar coverage further into the eastern portion of the PARC airspace than installation of a radar system on Hill 3265.

4.1.6.4.2 Under alternative 2, structures installed on the summit would be visible from the Taylor Highway which is located approximately 6 miles to the east. The installation of larger structures such as a radome, antennas, and equipment shelters could impact the scenic quality of the area and diminish the aesthetics of the surrounding area to recreational users.

4.1.6.5 No Action Alternative

This alternative would have no additional direct costs. However, this alternative would not provide the required long-range radar coverage of the airspace over and surrounding the Fort Greely National Missile Defense site or the mandated SUAIS as mandated through the Alaska Military Operations Areas Environmental Impact Statement which establishes PARC airspace. Use of airspace by military and civilian aircraft would continue to pose a safety hazard due to lack of adequate radar and radio coverage and would limit future USAF training opportunities in the eastern portion of the PARC airspace.

4.2 Biological Resources

4.2.1 Impacts Common to Proposed Action, Alternative 1, and Alternative 2

A radar and communications facility would contain equipment such as transmitters and microwaves, which are known to emit radio frequency radiation (RFR). Studies have shown that exposure exceeding maximum exposure limits is a health hazard and has been linked to increased cancer incidence and can have hematological and neurological effects on humans. Transmitters and microwave dishes would be placed high enough above the

surface to prevent people from unknowingly intersecting the focal point of a microwave beam, and areas subject to RFR would have appropriate warning signs. Both military and civilian maintenance personnel would be instructed to follow RFR procedural guidelines while operating in RFR areas.

4.2.2 No Action Alternative

A radar and communications site would not be installed and would not result in potential RFR hazards.

4.2.3 Vegetation

4.2.3.1 Proposed Action

The summit of Hill 3265 is classified as dry alpine tundra with an estimated 75 percent vegetation cover. Based on this estimate, approximately 300 square feet of upland type vegetation containing various graminoids, herbs, and lichens would be lost with the installation of the radar facility.

4.2.3.2 Alternative 1

Under this alternative approximately 3,300 square feet of upland vegetation containing various graminoids, herbs, and lichens would be lost with the installation of the radar system. Due to the abundance of similar vegetation types found throughout the area, the loss of vegetation would be minimal.

4.2.3.3 Alternative 2

Based on an estimate of 90 percent vegetation cover on the summit of Taylor Mountain, approximately 9,150 square feet (0.21 acres) of upland type vegetation would be lost with the installation of a radar facility. Vegetation consists primarily of graminoids and herbs. Due to the abundance of similar vegetation types found throughout the area, the loss of vegetation would be minimal.

4.2.3.4 No Action Alternative

There would be no loss of vegetation with this alternative.

4.2.4 Wildlife

4.2.4.1 Impacts Common to Proposed Action, Alternative 1, and Alternative 2

4.2.4.1.1 Mountain summits are used sporadically by wildlife in the area. Due to lack of adequate forage and other food sources, most species would only occupy these areas on a transitory basis. The minimal site disturbance and the availability of large areas of similar

habitat type nearby, no direct impacts to wildlife are anticipated with the proposed installation of a radar site.

4.2.4.1.2 Some impacts to birds could occur with proposed installation of a radar site. Bird collisions with communication towers and effects of RFR on birds may result in avian mortality. Violations of the Migratory Bird Treaty Act or the Endangered Species Act, or both, could result if fatalities occurred to protected species. The U.S. Fish and Wildlife Service has compiled evidence that higher mortality rates occur at towers greater than 200 feet aboveground and at towers that are lit with navigational warning lights. The tower used in the action alternatives would be less than 200 feet and likely have only minimal impacts to migrating birds.

4.2.4.2 Alternative 2

The construction of a facility at Taylor Mountain is not expected to have impacts on the migration patterns for species such as caribou due to its elevation and lack of preferred caribou habitat. However, development of a radar site on Taylor Mountain would require multiple helicopter trips to transport equipment and personnel and could result in temporary disruptions to wildlife movement as typically found during the construction phase of projects.

4.2.4.3 No Action Alternative

Implementation of this alternative would not result in any loss of wildlife habitat. No changes in wildlife habitat or movement would be expected under this alternative.

4.2.5 Fish

4.2.5.1 Impacts Common to all Alternatives

Implementation of the various alternatives would have no impact on fish habitat. The potential for increased stream sedimentation due to construction activities is low because no fish streams are located in close proximity to the summit areas.

4.2.6 Threatened or Endangered Species

4.2.6.1 Impacts Common to all Alternatives

No known threatened or endangered species inhabit the area and, therefore, these species would not be impacted by the selection of the proposed action, alternative 1, alternative 2, or the no action alternative. According to the USFWS, there are no identified sensitive nesting habitat sites within the vicinity of the proposed action site or the alternative sites.

4.3 Cultural and Historical Resources

4.3.1 Impacts Common to the Proposed Action, Alternative 1, and Alternative 2

The State Historic Preservation Office records indicate that cultural resource surveys have not been done on these sites. If the proposed action, alternative 1, or alternative 2 were selected as the action alternative, a cultural resource survey would be necessary prior to commencement of construction activities. If, during construction, there is any finding of archeological evidence, a qualified archeologist would evaluate the site prior to any further disturbance.

4.3.2 Proposed Action and Alternative 1

An archeological survey and a 106 Consultation will be completed for areas on and around Hill 3265.

4.3.3 Alternative 2

Chicken, Alaska, is listed on the Alaska Register of Historic places and is located approximately 11.5 miles east of Taylor Mountain. There would be no anticipated impacts to historical resources.

4.4 Subsistence

4.4.1 Proposed Action and Alternative 1: Subsistence activities such as hunting, fishing, or berry picking, are prohibited within the vicinity of Hill 3265 since it is part of an active military range. Therefore, construction of the radar facility will have no impact on existing subsistence activities.

4.4.2 Alternative 2: As previously noted the town of Chicken is about 11.5 miles from the Taylor Mountain site. Although no information is available with regard to subsistence use of the Taylor Mountain area, it is not anticipated that, due to its elevation, it is not a preferred location for hunting or food gathering.

4.4.3 No Action Alternative: No impacts to subsistence would result from the no action alternative.

4.5 Socioeconomic Factors

The project areas selected for action alternatives are unpopulated. Installation of a radar site may result in short-term economic benefits during the construction phase for some local suppliers, food service, and lodging businesses. There would be no changes with the no action alternative.

4.6 Environmental Justice

4.6.1 Executive Order (EO) 12898, Environmental Justice in Minority Populations and Low-Income Populations, was issued by President Clinton on 11 February 1994. Objectives of the EO, as it pertains to the NEPA process, requires federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. To accomplish these requirements the USAF must conduct an environmental justice analysis of all potential impacts that may result from the proposed actions.

4.6.2 The environmental justice analysis must first identify all adverse impacts associated with the project. The next phase is to delineate the potential area of impact for the resources affected. If, within this area of impact, population demographics are such that a disproportionate effect on minority or low-income populations may occur, it should be so identified. These impacts should be documented and mitigation should be developed that can be implemented by the USAF.

4.6.3 The site for the proposed project, Hill 3265, is located on federal lands designated for military training. It is restricted to military activities only, with no public access permitted. The closest residential area to this site is Eielson military housing, approximately 30 miles to the west. Eighteen miles to the north is the Chena Hot Springs Road area that contains low density, scattered residences. Neither of these residential areas exhibits characteristics of low-income or minority populations that are not exhibited in the Fairbanks population as a whole.

4.7.4 Based on the environmental impacts identified in this EA and on a corresponding environmental justice analysis, it is felt that no disproportionate impact to minority or low-income populations would occur from implementation of this project.

4.7 Cumulative Impacts

4.7.1 Cumulative impact is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Individual actions may result in minor impacts, but collectively may result in significant impacts from actions taking place over a period of time.

4.7.2 Cumulative impacts associated with the construction and expansion of military airspace, facilities, and training have been addressed in previous environmental documents. These documents include *Alaska Military Operations Areas-EIS* (U.S. Air Force 1995), *Alaska Army Lands Withdrawal Renewal-Final Legislative EIS, U.S. Army 1998, Ft. Greely, Proposed Resource Management Plan and Final EIS, U.S.D.I., Bureau of Land Management, 1989, Ft. Greely Integrated Natural Resources Management Plan and Environmental Assessment 1998-2002, U.S. Army Alaska, 1999, Fort Wainwright Resource Management Plan and Final EIS, U.S.D.I., Bureau of Land Management, 1989 and Integrated Natural Resources Management Plan 1998-2002 U.S. Army Alaska Volume 3 Fort Wainwright,* and *Integrated Natural Resources Management Plan, Eielson Air Force*

Base, 1998. These documents provide summaries of alternate resource management plans for areas affected by military activities.

4.7.3 The Bureau of Land Management (BLM) has been designated by Congress to be co-land managers with the U.S. ArmyAlaska (USARAK) for lands withdrawn under the Military Lands Withdraw Act of 1986 which includes the Fort Wainwright Yukon Training Area and Fort Greely West and East Training Areas. The combined areas contain a substantial portion of Alaska's military facilities. The USARAK and BLM have the joint responsibility of monitoring and documenting land use effects on these lands and to develop Resource Management Plans (RMP). The 1999 RMPs for Fort Greely and Fort Wainwright provide comprehensive discussions of cumulative impacts. These discussions arrive at the conclusion that significant cumulative impacts from military activities have not occurred.

4.8 Unavoidable Adverse Impacts

4.8.1 Unavoidable Impacts that could result from the Proposed Action and Alternative 1

The unavoidable impacts from implementation of these actions would be the disturbance of upland soils during construction of facility foundations would likely occur. Local air quality would continue to be diminished with the operation of the diesel generators. Alteration of the landscape with the addition of radar structures would exist for as long as they were in place.

4.8.2 Alternative 2

The unavoidable impacts for implementation of alternative 2 would be the loss of approximately 9,150 square feet of upland type vegetation and the disturbance of approximately 50 cubic yards of upland soils.

4.9 Relationship of Short-Term Uses and Long-Term Productivity

Very little long-term loss of productivity would result from construction of the proposed project or alternatives. Short-term benefits, however, would be significant. Installation of a radar system at Hill 3265 would provide long-range radar coverage capabilities that presently do not exist in portions of the MOAs, including the Fort Greely Missile Defense Site. The radar system would also provide an increase in safety for military and civilian pilots flying in the area and would enable the USAF to expand the training area that could be used safely. If the radar site were no longer needed, the facilities could be removed and the area would eventually be restored. No impacts to long-term productivity are anticipated.

4.10 Irreversible and Irretrievable Commitments of Resources

Irreversible commitments are those that cannot be reversed, except perhaps in the extreme long-term. Irretrievable commitments are those that are lost for a period of time.

There are no identifiable irreversible commitments associated with the proposed action, alternative 1, or alternative 2. The only irretrievable commitments may be the loss of existing vegetation in those areas that must be cleared for the installation of the radar site.

4.11 Mitigation

The proposed project would incorporate management practices that are designed to mitigate impacts to the environment as described in previous sections of this document. However, no specific mitigation has been prescribed by any resource agencies that have been consulted during the project coordination process.

5.0 List of NEPA Process Participants

5.1 Writers

Lyle D. Gresehover wrote all sections of this Environmental Assessment. Lyle has a BS in Geology and 14 years of experience in environmental science and natural resource management.

5.2 List of Agencies and Persons Consulted

Person	Agency	Information
James Nolke	USAF, 354th CES Environmental Planning Eielson AFB ph: 377-3365	Environmental
Major Steven Curley	USAF 354th Combat Training Squadron Eielson AFB ph: 377-1400	USAF. Operations
Capt Shane Hupp	USAF 354th Combat Training Squadron Eielson AFB ph: 377-1400	USAF. Operations
Ted Swem	Northern Alaska Ecological Services U.S. Fish and Wildlife Service Fairbanks ph: 456-0103	Wildlife Biology
Joan Dale	State Historic Preservation Office Anchorage ph: 269-8718	Cultural and Historical Resources
Greg Poyner	Nugget Construction Anchorage ph: 344-8365	Contractor

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7.0 Glossary

Erosion – The wearing away of soil or organic matter by flowing water or wind.

Loess – Unstratified deposits of silt and loam that are primarily deposited by the wind.

Mitigate – To reduce or negate the effects of an environmental disturbance or impact.

NORAD – a binational command involving the United States and Canada which provides warning of missile and air attack against both of its member nations, safeguards the air sovereignty of North America, and provides air defense forces for defense against an air attack.

Permafrost – Permanently frozen subsoil.

Physiographic – A region that contains the same general physical characteristics.

Radio Frequency Radiation – Radio frequency (RF)radiation is electromagnetic radiation in the frequency ranges 3 kilohertz (kHz) to 300 Megahertz (MHz). The primary health effect of RF energy is a result of heating. The absorption of RF energy varies with frequency and may be absorbed in deep body organs. Use of RF radiation includes: radios, cellular phones, communication transmitters, radar transmitters, and microwave equipment.

Recharge – Surface water which percolates through porous soils to become part of the ground water.

Upland – The higher parts of a region or tract of land.

Wetlands – Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support vegetation typically adapted for life in saturated soil conditions.

8.0 Public Notice

USAF ANNOUNCES
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ENVIRONMENTAL ASSESSMENT

In accordance with the National Environmental Policy Act (NEPA), and Air Force Regulations, Eielson Air Force Base has completed a Draft environmental assessment (EA) and Finding of No Significant Impact (FONSI) to evaluate the consequences of the following stated proposed action:

Upgrade an existing radar facility located on Hill 3265 in the Yukon Training Area. The upgrade will provide increased airspace coverage that will improve both military and civilian aircraft safety. In addition it will enhance Eielson's aircraft training capabilities in portions of the Military Operating Airspace in Alaska.

PUBLIC COMMENT WELCOME

To review the draft EA and FONSI, copies are available at the Noel Wien Library in Fairbanks. The public is invited to review these documents and make comments during the 30-day comment period from now until May 20, 2004. To get a copy of the EA, to comment, or for more information contact Maj. Valerie Trefts, 354 FW/Public Affairs, at (907) 377-2116, 354 Broadway Street, Unit 15A, Eielson AFB, AK 99702-1830.